

Radiation Mitigation Methods for Advanced Readout Array, Phase I

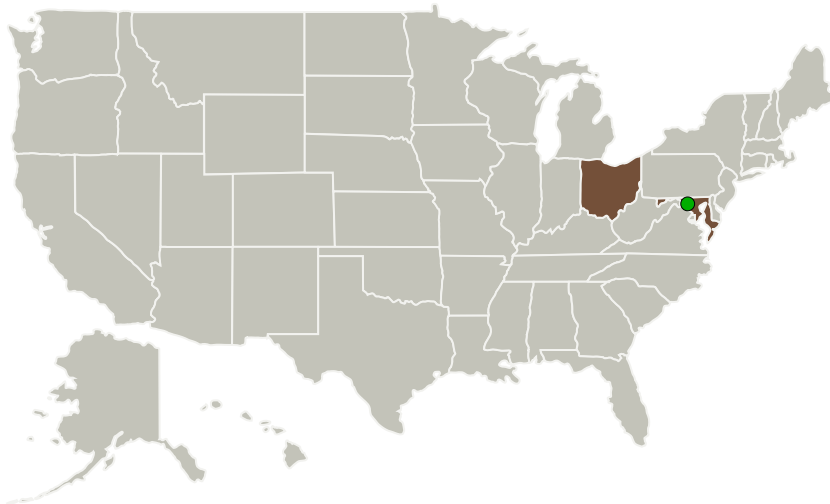
Completed Technology Project (2010 - 2010)



Project Introduction

NASA is interested in the development of advanced instruments and instrument components for planetary science missions. Specifically, an area of importance in relation to in situ sensors and sensor systems is instrument deployment on a variety of space platforms, which include orbiters, flyby spacecraft, landers, rovers, balloon, other aerial vehicles, subsurface penetrators, and impactors. These instrumentation and space platforms are to be used in the exploration of inner and outer planets and their moons, comets, asteroids, etc. As a direct consequence, the instrumentation systems are subjected to space and planetary environmental extremes including temperature, pressure, radiation, and impact stresses during operation. In particular, NASA is soliciting instrument development that provides advancements in several specific areas. One of these areas is "Radiation mitigation strategies, radiation tolerant detectors, and readout electronics components for candidate instruments for the Europa-Jupiter System Mission (EJSM)". We intend to answer NASA's need for a suitable radiation resistant ROIC technology for future planetary science missions through the integration of advanced radiation hardening technologies incorporating radiation hardening by design (RHBD) technologies, as well as the use of an advanced multi-gate integrated circuit technologies. Additional focus will be on the reduction of cost, size, weight, and power.

Primary U.S. Work Locations and Key Partners

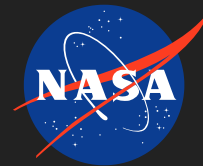


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Organizations Performing Work	Role	Type	Location
RNET Technologies, Inc.	Lead Organization	Industry	Dayton, Ohio
● Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Ohio

Project Transitions

**January 2010:** Project Start**July 2010:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/139365>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

RNET Technologies, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

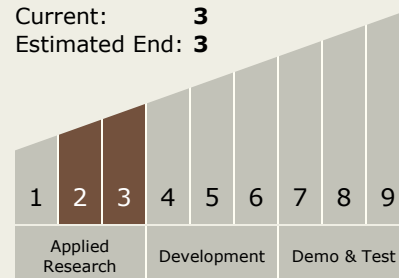
Carlos Torrez

Principal Investigator:

Todd S Grimes

Technology Maturity (TRL)

Start: 2
 Current: 3
 Estimated End: 3



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.3 Optical Components

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System